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TWO NEW SPECIES OF *CLYMENELLA* (POLYCHAETA:
MALDANIDAE) FROM BRAZIL

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INTRODUCTION

A collection of maldanid polychaetes made by Dr. Liliana Forneris in Brazil was recently placed at my disposal. The collection contains three species from shallow waters of the Atlantic Ocean in the vicinity of the Marine Laboratory of the Instituto Oceanografico of the Universidade de São Paulo at Ubatuba, Brazil (S. Lat. 23° 30', W. Long. 45°). Descriptions of two new species and notes on a poorly known third follow below.

GENUS *CLYMENELLA* VERRILL 1873

Clymenella (= *Euclymene*) *dalesi* sp. nov.

SYNONYM. Questionably *Praxilla kefersteini* Kinberg, 1866.

DESCRIPTION. Fully formed adult with 25 segments: a single achaetous prostomial segment, 21 setigerous segments, 2 pre-anal achaetous segments and a single achaetous anal segment.

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Cephalic plate slanting dorsally on prostomium at an acute angle (60-80°). Rim of cephalic plate notably elevated, flaring, conspicuously notched: a pair of anteroventral notches, a pair of lateral notches and a single median dorsal notch. Rim otherwise entire, lacking crenulations and denticles. Central depression of cephalic plate bisected by longitudinal median keel, which is bounded on either side by a deep straight furrow (nuchal organ) extending approximately three-quarters the length of the plate. Keel protruding anteroventrally between rim notches as small papilla. Prostomium lacking dark pigment granules. Prostomial bulb irregularly but not conspicuously papillate (Fig. 1A).

First three setigerous segments with bundle of notopodial capillary setae and, typically, a single neuropodial uncinus. Five of the 40 specimens with two uncini per neuropodium on at least one side of one segment. Capillary setae long (1.5 mm), slender (7 μ), primarily bilimbate, though some are spinulose towards sharply pointed tips. No pennate capillary setae clearly noted. Uncini large (500-700 μ long, 50 μ wide), yellow, with vertical and horizontal striations on shaft. Tips smooth, lacking teeth, notches and beards; tips typically bent at angle of 120°, but range from 100 to 160° (Fig. 1C).

Fourth setiger with fleshy anterior rim which may project over posterior portion of third in the contracted state; one of 40 specimens with freely flanged collar. Setigers 9-21 becoming increasingly elongate; parapodia protruding. Posterior notopodial setae similar to anterior ones; posterior neuropodia with single row of up to 20 rostrate (angle approximately 30°) uncini. Posterior neuropodial setae small (150-180 μ long, 18 μ wide), bearded, bulbed at epidermal level; subdermal shaft vertically striated; tips with 4-5 small teeth plus main fang (Fig. 1D).

Anal funnel with irregularly alternating long and short cirri, often becoming triangular in large specimens. Relative length of anal cirri quite variable, but median ventral cirrus never longer than rest (Fig. 1B). Anus central in depression of funnel.

Preserved specimens colorless to dark brown with discrete red bands encircling portions of setigers 4-8.

Mean length of 10 complete specimens, 39.6 mm; range, 12-73 mm; width, 2-3 mm.

Tube unknown.

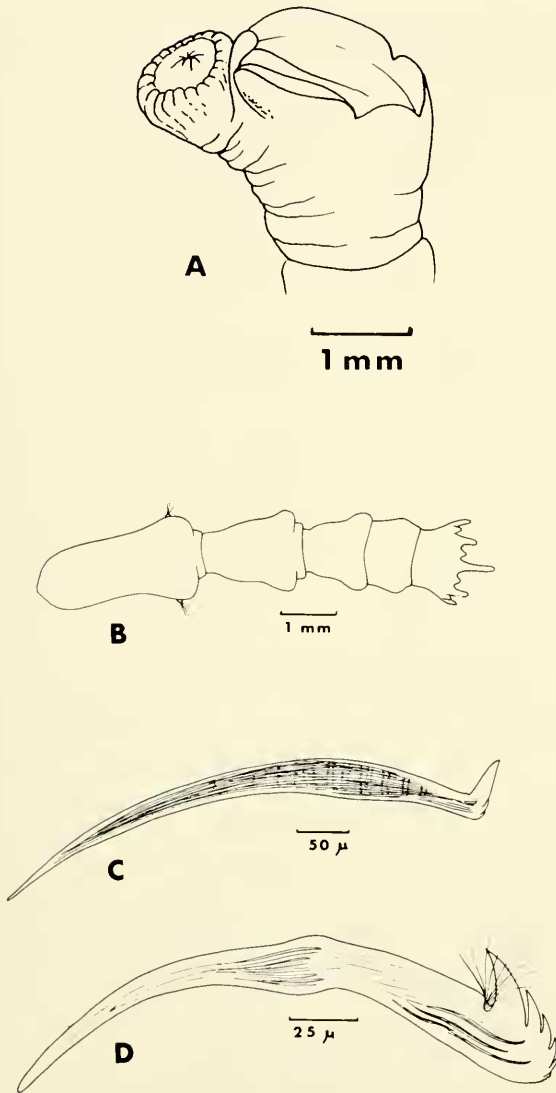


Figure 1. *Clymenella dalesi* sp. nov.

- A. Head region, lateral view.
- B. Tail region, ventral view.
- C. Anterior neuropodial seta.
- D. Posterior neuropodial seta.

LOCALITIES. Bay of Flamengo (depth 1-12 m., salinity 34.12 — 35.34 0/00); Santos.

DISCUSSION. The generic separation of *Euclymene* Verrill (1900) from *Clymenella* Verrill (1873, 1900) is by no means clearly defined at present. The distinction is sometimes based on the presence of a flanged collar on the fourth setiger of *Clymenella*, although Verrill (1900) himself emphasized the superficial nature of this character and chose not to regard it as a generic one. Moreover, at least two of the four species of *Clymenella* recognized by Hartman (1959) have no collars. Alternatively, the distinction is sometimes made on the presence of anterior neuropodial aciculae (needles or bent spines) in *Euclymene* as opposed to rostrate uncini (recurved hooks) in *Clymenella*. Since the same difference is found *within* the genus *Praxillella*, it is illogical to accord generic status to this character alone. Finally, the categorical distinction between aciculae and rostrate uncini certainly exaggerates the differences by implying a dichotomy where in fact a continuum exists. The evidence in support of this contention will be presented in a discussion of maldanid phylogeny which is in preparation.

Clymenella dalesi is the only species in either genus which is known to have 21 setigerous segments. There are, however, six species recognized by Hartman (1959) whose segment number is not known. None of these incompletely known species occurs in parts of the world where gene exchange is likely to be maintained with a Brazilian population; moreover, morphological characters alone suffice to distinguish *C. dalesi* from these six as follows:

Grube (1840) described 24 segments in the Mediterranean species *Clymene palermitana*. On re-examination of the type, Fauvel (1927, p. 176) indicated that it has "20 à 22 sétigères (?)" [*sic*] and three clearly illustrated achaetous pre-anal segments. Regardless of the correct number of setigers, the three achaetous pre-anal segments of this species, listed as *Euclymene palermitana* by Hartman (1959), distinguish it from the Brazilian worm. Fauvel (1927) also mentions the occasional presence of prostomial pigment granules and a longer median ventral cirrus, both of which are absent in *C. dalesi*.

Fauvel's (1927) account of a fragment from the English Channel, *Clymenella* (?) *cincta* (Saint-Joseph), clearly shows a

festooned, flanged collar on the fourth setiger which is absent in *C. dalesi*. In addition, Saint-Joseph (1894) and Fauvel (1927) both described only anterior and ventrolateral notches in the cephalic rim — no posterior notch as in *C. dalesi*. In both cases, the figures agree with the text.

Euclymene coronata Verrill (1900), from the Bermuda Islands, has only slight lateral notches in the cephalic rim, and 8-10 lobes on the posterior border. Moreover, I have recently examined two specimens from Tavernier Key, Florida; each has 19 setigers.

Euclymene tropica (Monro, 1928), which consists of both anterior and posterior fragments from the Pacific coast of Panama, also has a crenulated, denticulated posterior cephalic rim, which is clearly illustrated. In addition, it has only one achaetous pre-anal segment.

Moore (1923) described the two species *Euclymene delineata* and *E. reticulata* from fragments collected off southern California. *E. reticulata* is strikingly distinct from all others in the genus by virtue of its completely united prostomial and first setigerous segments. *E. delineata* differs from *C. dalesi* by virtue of its longer median ventral anal cirrus (Hartman and Barnard, 1960), and possibly by its toothed posterior cephalic rim. Although Moore (1923) emphasized the deep reticulation of its integument, certainly not true of the specimens of *C. dalesi* at hand, I am skeptical of the taxonomic value of this character, which is often correlated with size.

I have mentioned above a highly uncertain synonym, *Praxilla kefersteini* Kinberg (1866), which is considered indeterminable (Arwidsson, 1907). The few details of Kinberg's (1866) description do agree with *C. dalesi*, but they are not diagnostic.

It gives me great pleasure to name this species in honor of my colleague, Dr. R. Phillips Dales of Bedford College, University of London.

HOLOTYPE. Ubatuba, Bay of Flamengo. YPM No. 2596.

PARATYPES. Same locality. USNM No. 34089; YPM Nos. 2597, 2598.

***Clymenella* (= *Axiothella*) *brasiliensis* sp. nov.**

SYNONYM. Questionably *Iphianissa armata* Kinberg (1866).

DESCRIPTION. Fully formed adult with 22 segments: a single achaetous prostomial segment, 18 setigerous segments, 2 pre-anal achaetous segments and a single achaetous anal segment.

Cephalic plate slanting dorsally on prostomium at an acute angle (approximately 65°). Rim of cephalic plate notably elevated, flaring; rim conspicuously notched: a pair of anteroventral notches, a pair of lateral notches and a single median dorsal notch; rim otherwise entire, lacking crenulations and denticles. Central depression of cephalic plate bisected by median longitudinal keel, which is bounded on either side by a deep straight furrow (nuchal organ) extending one-half to two-thirds the length of the plate. Keel protruding anteroventrally as small papilla. Dark pigment granules (often called "ocelli" quite erroneously, for photosensitivity is unknown in maldanids) present immediately ventrolateral to keel papilla, but inconspicuous. Prostomial bulb faintly and irregularly papillate (Fig. 2A).

First three setigerous segments with notopodial capillary setae and several neuropodial uncini. Capillary setae long (1.3 mm), slender (12μ), either bilimbate with dark vertical striations or finely pennate towards tips. Spinulose capillary setae not noted. Neuropodial setae numbering 4-6 on first setiger, 4-6 on second and 3-5 on third; typically descending in number from first to third setiger. Neuropodial setae rather large ($450-520\mu$ long, $25-30\mu$ wide) with dark brown vertical striations on shaft and a distinct notch (but no beard) immediately proximal to the main fang. Tips bent at angle of $85-120^\circ$, with 1-3 small teeth plus main fang (Fig. 2C).

Fourth setiger with fleshy anterior rim which may project over posterior portion of third in contracted state, but no freely flaring collar in the 11 specimens. Setigers 9-18 becoming increasingly elongate; parapodia protruding. Posterior notopodial setae similar to anterior ones; posterior neuropodia with up to 15-25 rostrate uncini in single row. Uncini small ($200-270\mu$ long, 18μ wide), bearded, notched at epidermal level; subdermal shaft faintly striated vertically. Tips bent acutely (angle $15-25^\circ$); 4-6 teeth plus main fang (Fig. 2D).

Anal funnel with irregularly alternating long and short cirri. Median ventral cirrus $1\frac{1}{4}$ - $2\frac{1}{2}$ times longer than others (Fig. 2B).

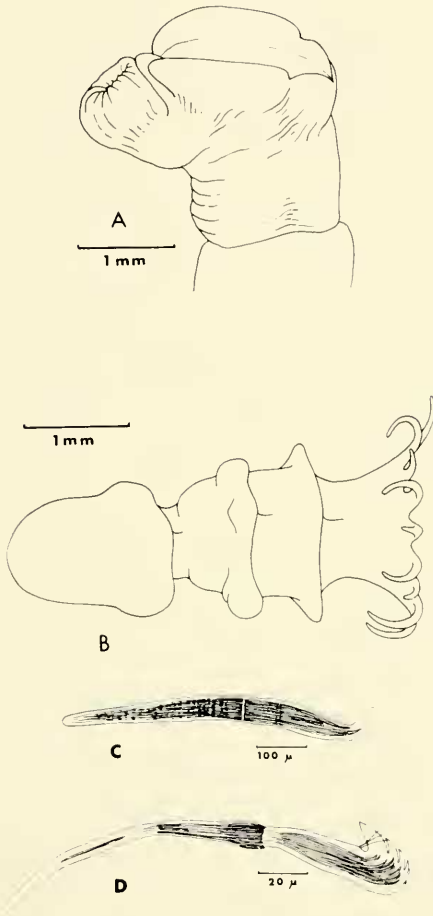


Figure 2. *Clymenella brasiliensis* sp. nov.

- A. Head region, lateral view.
- B. Tail region, ventral view.
- C. Anterior neuropodial seta.
- D. Posterior neuropodial seta.

Preserved specimens colorless or dark brown, with red bands encircling portions of setigers 3-9.

Length of 4 complete specimens, 52-64 mm; width, 2-3 mm.

LOCALITIES. Bay of Flamengo (depth 1-12 m., salinity 34.12 — 35.34 0/00); Santos.

DISCUSSION. Verrill (1900) explicitly relegated *Axiothella* to subgeneric status, giving his reasons at some length. I have reviewed the history of the arguments previously (Mangum, 1962).

The characters that distinguish *C. brasiliensis* from other members of the genus are the combination of 18 setigerous and 2 pre-anal achaetous segments, the presence of a fleshy rim on the fourth (and not the fifth) setiger, the presence of a longer median ventral anal cirrus and the number of cephalic rim notches. It is also distinguished from *Clymenella minor* Arwidsson (which does have the above combination) primarily by the character of the anterior neuropodial setae, which are virtually straight and unbent, fewer and larger in *C. minor* (Arwidsson, 1911). Of perhaps some importance, *C. minor* differs in its unique pattern of pigmentation and the relative length of anal cirri.

Again, I have mentioned above an equally uncertain synonymy with *Iphianissa armata* Kinberg (1866), because the few details given do agree with *C. brasiliensis*. Arwidsson's (1907) referral of *Iphianissa* Kinberg to *Praxillella* Verrill, on the basis of similar neuropodial setae and the location of glands, is not valid since these characters alone do not distinguish *Praxillella* from at least three other genera.

HOLOTYPE. Ubatuba, Bay of Flamengo. YPM No. 2593.

PARATYPES. Same locality. USNM No. 34090; YPM Nos. 2594, 2595.

GENUS *ASYCHIS* KINBERG 1866

Asychis amoena (KINBERG) 1866

DESCRIPTION. Body of 21-22 segments: a single achaetous prostomial segment, 19 setigerous segments, a single pre-anal achaetous segment (questionably) and a single achaetous anal segment.

Cephalic plate slanting dorsally on prostomial segment at acute angle of approximately 50°. Rim of cephalic plate moderately elevated, with deep lateral notches on each side, faint ventrolateral notches on each side and several irregular faint notches on median ventral portion. Cephalic plate with pair of inverted

U-shaped nuchal organs anteroventrally and incomplete horizontal furrow posterodorsally. No raised median cephalic keel.

First setigerous segment with laterally notched, flanged collar. Collar with single, deep scallop beginning mid-dorsally and ending at right lateral notch.

First setiger with dorsal capillary setae in single row; no ventral setae. Second setiger with row of 7 neuropodial rostrate uncini and elliptical fascicle of dorsal capillary setae. Notopodial setae continuing as ellipse posteriorly; neuropodial setae increasing in number posteriorly to about 20-25.

Anus dorsal to suboval caudal plate. Rim of caudal plate with deep ventrolateral notches, otherwise entire. No caudal cirri. Caudal plate with slight ventral depression, otherwise somewhat convex.

Preserved specimen essentially colorless, with a very few tiny dark pigment granules scattered over anterior part of dorsum. Anterior segments opaque; mid-region and posterior segments transparent, showing eggs in coelom.

Length of one complete specimen, 43 mm; width, 3 mm. Tube unknown.

LOCALITY. Vitoria Island.

DISCUSSION. Although the original description of this species is rather sketchy (Kinberg, 1866), Hartman (1949) re-described the type material in full detail. The type material consists of a single complete specimen from the shallow (43-66 m) waters of the Atlantic Ocean about 650 km northeast of Vitoria Island. The present collection also includes a single specimen which agrees in most respects with the descriptions given by Kinberg (1866) and Hartman (1949). It is difficult to believe that the most conspicuous discrepancy, the asymmetrical scallop on the collar of the first setiger, is truly typical, although there is no evidence of damage to the specimen. It should probably be regarded as an abnormal growth in this individual.

Since the species is known only from the type material, the description above may contribute to our knowledge of the range of variation found within it.

I have donated my single specimen to the Peabody Museum at Yale University (YPM No. 2592).

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